

to differing degrees, and SEQ ID NO: 11 resulted in reduced recognition for four of five. When SEQ ID NO: 12 was tested, it was surprising that recognition improved, because TIL recognition decreased. With respect to SEQ ID NOS: 13 and 14, there was reduced recognition by the CTLs.

It can be gathered from this that SEQ ID NOS: 7 and 9 were better recognized, consistently, than the other peptides tested, while other peptides were recognized to different degrees.



TABLE IV

Recognition of peptide analogs by Melan-A specific CTL clones

SEQ ID NO:	Peptide sequence	M77.86		7.10		Recognition by clone		M77.80		1.13	
		Peptide [nM] 50%	Relative activity	Peptide [nM] 50%	Relative activity	Peptide [nM] 50%	Relative activity	Peptide [nM] 50%	Relative activity	Peptide [nM] 50%	Relative activity
2	AAGIGILTV	15	1	50	1	300	1	300	1	4000	1
5	ALGIGILTV	90	0.16	>1000	<0.015	>1000	<0.3	>1000	<0.3	>10000	<0.4
6	AMGIGILTV	>1000	<0.015	>1000	<0.015	>1000	<0.3	>1000	<0.3	>10000	<0.4
7	LAGIGILTV	0.08	187	1.5	33	150	2	0.03	10000	30	130
8	MAGIGILTV	0.6	.25	15	3	200	1.5	0.5	600	80	50
1	EAAGIGILTV	0.15	100	4	12	0.06	5000	600	0.5	2000	2
9	EALGIGILTV	300	0.05	>1000	<0.015	40	7.5	>1000	<0.3	>10000	<0.4
10	EAMGIGILTV	0.5	30	1	50	0.02	15000	5	60	50	80
11	ELAGIGILTV	0.015	1000	0.5	100	0.015	20000	0.5	600	20	200
12	EMAGIGILTV	550	36	>1000	<0.015	40	7.5	>1000	<0.3	>10000	<0.4
13	YAAGIGILTV	0.015	1000	35	1.4	>1000	<0.3	1000	0.3	>10000	<0.4
14	FAAGIGILTV	0.005	3000	7	7	>1000	<0.3	>1000	<0.3	200	20

Relative antigenic activity of Melan-A derived peptides was measured as described in the legend to FIG. 4 and table III.

Additional experiments are depicted in Figure 3 which show recognition of various Melan-A peptide analogues presented by T2 cells, by TILN LAU203 and TILN LAU132. A 4-hour ⁵¹Cr assay was conducted at a lymphocyte to target ration of 30:1.

The first panels of Figure 3 (top and bottom) compare SEQ ID NOS: 2, 7, 8, 5, and 6.

The second set of panels (top and bottom) compare SEQ ID NOS: 1, 9, 10, 11, and 12.

The third set (top and bottom) compares SEQ ID NOS: 1, 13, 14, and 4.

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Note that there was barely any activity with the parental peptides in sample LAU203, while SEQ ID NO: 9 elicited a strong CTL response. This activity was also cross reactive with SEQ ID NO: 1.

The results in the following table describe experiments using the same peptides and using PBL from eight different HLA-A2 positive melanoma patents, LAU203, LAU132, LAU145, LAU86, LAU50, LAU148, LAU161 and LAU119.

TABLE V

tested on: Patient		Percentage specific lysis from cultures stimulated with peptide ^{a)}											
		SEQ ID NO: 2 Melan-A 27-35				SEQ ID NO: 4 Melan-A 26-35				SEQ ID NO: 5 Melan-A 26-35 A27L			
		E/T ^{b)}	T2	T2 + M10	Me260	Me290	T2	T2 + M10	Me290	Me260	T2	T2 + M10	Me290
LAU203	100	38 ^{c)}	29	7	17	37	41	15	6	32	83	18	81
	30	29	11	10	0	17	23	7	1	26	96	4	75
	10	3	6	2	0	9	17	0	0	17	73	1	62
LAU132	100	9	12	1	0	19	19	6	3	34	50	6	31
	30	3	7	2	0	5	10	1	2	16	32	3	18
	10	0	0	5	1	0	0	1	0	5	23	2	6
LAU145	100	15	24	4	1	39	40	5	9	29	50	6	30
	30	9	12	3	1	15	25	2	1	10	29	5	19
	10	3	6	0	0	4	6	0	0	10	16	3	7
LAU86	100	36	29	22	5	44	38	14	10	35	45	24	15
	30	17	15	9	5	20	26	6	0	24	23	10	4
	10	16	5	2	0	10	10	1	0	14	9	1	0
LAU50	100	21	26	7	5	18	20	5	5	19	26	6	20
	30	7	16	4	5	8	13	1	0	10	18	3	8
	10	7	7	0	4	0	4	1	0	3	12	0	0
LAU148	100	51	39	13	4	46	45	9	0	34	39	9	4
	30	19	8	5	4	20	26	1	2	19	27	9	3
	10	3	6	1	0	14	14	6	0	13	13	1	0
LAU161	100	24	22	6	1	33	31	3	1	25	38	4	23
	30	3	8	6	1	16	12	3	0	18	23	2	13
	10	2	0	5	0	9	7	2	0	5	11	3	4
LAU119	100	31	27	5	12	33	31	1	4	18	46	5	45
	30	7	13	1	1	17	23	3	4	13	39	4	25
	10	4	0	0	0	9	12	1	0	7	17	2	16
Clone 6	10	7	73	2	73								
	3	3	74	0	61								
	1	0	65	0	51								

^{a)}Lytic activity was assayed 7 days after the third restimulation.

^{b)}Lymphocyte to target cell ratio titration was performed for every assay.

^{c)}Numbers represent the percent specific lysis obtained for each target.

Me290 is a Melan-A and HLA-A*0201 positive melanoma cell line obtained from patient LAU203.

Me260 is a HLA-A*0201 negative melanoma cell line obtained from patient LAU149

Each number represents the geometric mean of duplicate cultures.

Bold face type indicate significant specific CTL.

When the differences in specific lysis obtained on T2 cells in presence or in absence of Melan-A 26-35 (1 μ M) or Me290 and Me260 is equal or higher than 10%.

A patient is considered as responder when a significant specific lysis is detected in at least one of the cultures.

^{d)}Clone 6 is a Melan-A specific CTL clone derived from the TLN 289.